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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/666,054	09/22/2003	Richard Laliberte	1060872	6588

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MONTREAL, QC H3B-4W5  
CANADA

EXAMINER
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SUHOL, DMITRY

ART UNIT	PAPER NUMBER
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3725

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/03/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/666,054

Applicant(s)

LALIBERTE ET AL.

Examiner

Dmitry Suhol

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,4-17 and 19-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-17 and 19-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-5, 7, 9, 11-16, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Obata et al (JP 2000-003705) in view of Emori et al (JP 55-112114) and Coe '607. Obata discloses a method and apparatus for lamination a lithium sheet containing most of the claimed elements including, with reference to claims 1 and 13, passing a sheet of lithium (6) between the meeting surfaces of a pair of working rollers (1, 2) to reduce the thickness of the sheet (figure 1), removing the lithium sheet of reduced thickness from between the pair of working rollers by applying a given tension to the sheet (figure 1, tension provided by take up reel 9). A pair of back-up rollers, as required by claims 4 and 15, are shown as rollers 3 and 4. The working rollers being made of plastic, as required by claims 11, are taught at page 2 of the translation (polyethylene is a well know plastic). Lubricant, as required by claims 12 and 13, is shown as lubricant dispensing unit (5) in the figures. A feed roller, as required by claim 13, is shown as roller (8) and a winding roll as required by claim 13 is shown as roll (9).

Obata fails to explicitly teach the steps of measuring the evenness of the thickness of the lithium/lithium alloy strip with an optical system and adjusting the profile

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defined by the meeting surfaces of the working rollers in response to the measurements of the system (by applying hydraulic forces to the end of the working rolls as required by claims 5 and 16) to control the shape and profile of the lithium sheet thickness as required by claim 1, by the adjusting means of claims 13 and 14. However, the use of an optical system to evaluate the thickness profile of a strip being produced and thereby control hydraulic elements acting on end portions of the working rollers to adjust the roll gap and thereby adjust the strip profile thickness is taught by Emori (see abstract and figure 2). Therefore it would have been obvious to one having ordinary skill in the art, at the time of the claimed invention to have manufactured the stand of Obata with the control elements taught by Emori for the purpose of manufacturing a strip with a quality shape and profile.

Coe is relied upon to teach that the use of convex working rollers in a rolling stand is well known in the art for the purpose of producing a product with a uniform thickness (figure 1). Therefore it would have been obvious to manufacture the work rolls of Obata with a convex shape for the purpose of producing a product with a uniform thickness.

With respect to the claimed deviation of 10 microns or less, it would have been obvious to utilize such a deviation as it only depends on the desired outcome of the strip profile.

Regarding the use of electric actuators to control the pressure and forces acting upon the working rolls as required by claim 7, it would have been obvious to utilize such structure to control the forces and pressures applied to the working rolls since

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applicants clearly states that any type of pressure and force application means is encompassed by their invention (page 11, lines 9-11) and since the examiner takes official notice that such control means is well known in the art.

Regarding the limitations of claim 9, the use of a steel material in the working rollers would have been obvious since the examiner takes official notice that providing such rollers where at least the core is made of stainless steel is known in the art are commonly used for the purposes of durability and strength (e.g. see applicants admission with respect to U.S. patent 3,721,113).

Claims 6, 14, 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Obata et al (JP 2000-003705), Emori et al (JP 55-112114) and Coe '607, as stated above, and further in view of Diolot '124. Obabta, as modified by Emori and Coe, discloses most of the claimed elements as stated above but for the use of hydraulic control valves as required by claims 6 and 19 and supporting members and frames, as required by claims 14 and 17. However, Diolot '124 is relied upon to teach that it is known to provide bending forces to working rolls to compensate for the roll imperfections by applying hydraulic forces controlled by valves (11) to piston cylinder units (7) which are mounted onto support frames (8) of the backup rolls (4) and act upon supporting members (5, 6) onto which are mounted working rolls (2). Therefore it would have been obvious to one having ordinary skill in the art at the time of the claimed invention to have manufactured the stand of Obata, as modified by Emori and Coe, with the features taught by Diolot (see above) for the purpose of adjusting the working roll

profile in order to achieve the desired sheet profile/width regardless of wearing and crowning and other imperfection which may occur.

Claims 8 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Obata et al (JP 2000-003705), Emori et al (JP 55-112114) and Coe '607, as stated above, and further in view of Martt '913. Although Obata, as modified by Emori and Coe, fails to teach the step of passing a sheet through a series of tightly packed upper and lower rollers as required by claims 8 and 20, Martt clearly teaches that it is known to pass sheet material through a series of tightly packed upper and lower rollers (35 which comprise at least three rollers 96, 97, 98 and col. 8, lines 15-17) prior to the sheet passing through the working rolls of stand 37 for the purpose of straightening the sheet and providing the sheet with the desired tension. Therefore it would have been obvious to incorporate the teachings of Martt in the stand of Obata for the purpose of straightening the sheet and providing the sheet with the desired tension.

Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Obata et al (JP 2000-003705), Emori et al (JP 55-112114) and Coe '607, as stated above, and further in view of Davenport (W/O 01/97989). Obata, as modified by Emori and Coe, fails to explicitly teach the make up of his rollers being stainless steel (as required by claim 9) and chrome (as required by claim 10). However, Davenport discloses a work roller used in rolling mills such as the one of Obata which teaches that it is known to manufacture such rollers with a steel core (12) coated with chrome (14),

(see page 10 lines 26+) for the purpose improved product flatness, high speed rolling and durability. Therefore it would have been obvious to utilize working rollers manufactured from stainless steel coated with chrome in the mill of Obata for the purpose of improved product flatness, increased rolling speeds and durability.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Obata et al (JP 2000-003705), Emori et al (JP 55-112114) and Coe '607, as stated above, and further in view of Rudolph '306. Obata, as modified by Emori and Coe, fails to teach the use of a thin film of insulating material to separate the layers of lithium film so that the layers will not adhere to each other as required by claim 21. However, Rudolph discloses a method and device usable with lithium cell material which teaches that it is known to provide take up reel (174) with a thin film (176) so that the layers of lithium film does not adhere to each other (col. 8, lines 49-52). Therefore it would have been obvious to incorporate a thin insulating material with the take up reel of Obata for the purpose of preventing the lithium film layers to stick to each other.

### ***Response to Arguments***

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection. Coe has been introduced to teach a convex profile as claimed.

### ***Conclusion***

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dmitry Suhol whose telephone number is 571-272-4430. The examiner can normally be reached on Mon - Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Derris Banks can be reached on (571) 272-4419. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Dmitry Suhol  
Primary Examiner  
Art Unit 3725

ds